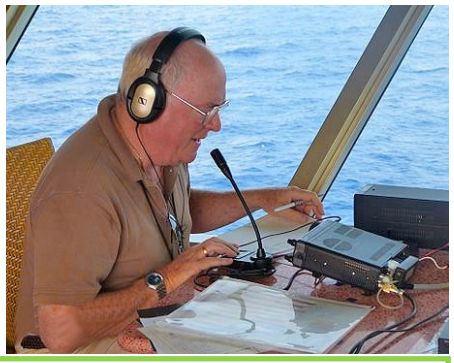
Microvolt

Monthly newsletter of the Utah Amateur Radio Club

February 2026

Station Installation



Your amateur radio station could be large or small, meager or elaborate, expensive or cheap, or even something in between. Is your station installed in a car, an RV, a boat, a plane, your attic, or in your basement? For a starter or basic station, your "installation" was likely no more involved than a purchase and thoughtful placement. Does that describe your station, or did you need to expend significant time and money to set up your dream shack? Let's take a look at *station installation*, to explore and share some possibilities.

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Cover – Ham radio station installation

So that we're on the same page, our radio equipment that includes a transceiver is known as our ***station***, whereas the room that houses that equipment is often nicknamed our ***shack***. Relevant to this discussion, we've built our station into our shack, and the focus is the ***installation*** of that station.

Reaching out for help

Many of us are quite self-sufficient, requiring little help from others. But most of us occasionally need a little extra assistance in the way of muscle, skill, confidence, or maybe just an extra pair of eyes. At times a little heavy lifting of a battery, a rig, or a piece of equipment requires us to ask others for their strength or industrial tool to do the lifting.

By ***confidence*** we mean that it can get a little scary to climb a roof, get into an attic, or use an instrument for which we have little or no training, such as an antenna analyzer, wire stripper, or soldering iron.

Don't be afraid to ask questions. If you encounter somebody who makes you feel like you should have known the answers, don't let that bad experience discourage you, and ask somebody else. Typically, ***the hams who ask the dumbest questions become the smartest operators***. Keep asking, and don't let anybody stop you from asking more questions.

Go for it

Some questions that often arise include

- What if I do something dangerous or illegal?
- Will being only a Technician prevent my success?
- Do I possess the skills required for my project?
- Given my circumstances, will my ideas work?

Sometimes, it takes a little courage, but rest assured that ***your installation will work***. You can always improve on it, but if you've done a little homework, have searched for some advice, and have basically done some due diligence, chances are pretty good that your station will make you proud.

Example installations

Here are a few common station installations that modern amateurs just like you have constructed, not including the ham radio gear:

- Dedicated computer desk with computer, monitor, band chart, boom microphone, and foot switch
- Card table with pen, paper, and desk lamp
- Truck with the radio control head mounted on the console and transceiver body behind the seat, plus a microphone hook installed on the side of the console and power cable to the battery
- Temporary folding TV table with a gaming headset and surge-protected power strip nearby
- HT (handheld transceiver) clipped to a MOLLE backpack with an accessory hand microphone

The "ham radio gear" that accompanies any of these can be a pair of HF and VHF transceivers, plus power supply, feed lines, meters, rotator indicator, key, and so forth. As you can see, your station can be arranged in a variety of installation preferences.

The physical layout

Some station installation issues should be addressed during the design phase of your shack, including

- Safety (electrical, sharp corners, rough edges)
- Convenience (everything within reach)
- Lighting
- Power (AC, battery, solar, fail-over)
- Computer (almost a necessity today)
- Audio (speakers, headset, head phones, etc.)
- Station grounding (bonding, ground loops)
- Shack RF (RFI, or radio frequency interference)

As one person put it, *for a wireless hobby we sure seem to have a lot of wires*. One task that needs your attention is how to collect, restrain, and even conceal your tangled mess of wires. The disorderly array of coax, microphone cables, USB cables, keyboard, mouse, and power cords can be not only unsightly but dangerous. You can easily bundle some of them in raceways, loom tubing, and cable straps.

Microvolt editorial staff

Editorial – Installation qualifications

Does a person need to hold some sort of credential before attempting to set up a ham radio station? Well, before you answer that an HT (handheld transceiver) in the hand of a licensed operator is as much of an installation as some would need, consider for a moment that not all stations are that simple. In fact, it turns out that some parts of a more advanced station might require some installer qualifications beyond an FCC ticket.

While most ham shacks require little technical knowledge to put together a collection of equipment that magically work together, many hams are unsure about interconnecting particular components. Tuners, power sources, connector types, SWR meters, coax varieties, and myriad antenna types seem confusing to the new licensee, often leading the ham to rely on the expertise of more experienced help. In most cases, that reliance is all that's needed for a perfect station, but there are exceptions.

Electronics technician

When greater expertise is required, like troubleshooting the circuit board of a rig for a blown final, or tuning the components of a bandpass filter, the assistance of an ***electronics technician*** and his / her test instruments might be necessary.

Licensed electrician

If the station owner needs to construct a complete station ground, including a connection to the electrical service, a call to a ***licensed electrician*** could save the operator some headaches or even a fire. A few things should be considered in concert, to create an effective ground system, such as a good discharge unit ("lightning arrester"), ground rod and spacing, appropriately sized ground wire, and types of ground connections. Your electrician should be acquainted with its connection to your service, but you might need to request the expertise of another mentor for the rest.

Professional engineer

Should the station owner want to erect a tower, then the qualification requirements quadruple. First, the owner should secure a ***tower permit***, which must be certified by a ***professional engineer*** for location and potential structural integrity. Next, the station ground must be robust and technically laid out for lightning safety and electrical code requirements satisfaction, which might require the help of a ***licensed electrician***. Assuming the owner is capable of digging his own hole and pouring his own concrete, he must hire a ***crane or bucket operator*** to erect the tower. Finally, the tower owner should enlist the help of a ***certified climber*** to install the antenna, guy wires, and coax.

Building contractor

One of the most difficult tasks to decide when building a ham station is how to get the coax from a rooftop antenna into the house. For some homes, it's as easy as routing it through an attic vent, then down inside the wall to the shack. Other places might require a little more invasive approach, like drilling a hole through the footing or foundation. Many hams do not feel comfortable violating their homes in such a drastic or permanent fashion, and either resort to another approach or ask a more qualified person, like a ***building contractor*** for help.

Finally

So when in doubt, hire a more qualified person when you need one, but go ahead and get it done. If you're unsure, ask around, especially to known elmers with a little experience and knowledge under their belts. Be forewarned that Facebook, YouTube, and AI do not always get it right, so again, ask around.

Anything to add? Email ***editor@utaharc.org***

Letters to the editor

Dear Editor:

I need a good and easy way to log contacts when I'm out doing POTA, but I find that carrying a laptop is not always convenient. What are your thoughts about logging on the go? Should I stick with paper?

Mark in Granger

Dear Mark:

Paper logging isn't ideal, but it isn't so bad either; it allows one to scribble quickly (often faster than typing), jot down thoughts, correct call signs, and take margin notes. Later, just transfer the necessary contact information to a good logging program like N3FJP AC Log (best) or QRZ (free). We've discussed other good logging software in a previous article.

Dear Editor:

It seems to me that going from Technician to General gives me a lot of frequency privileges, but going from General to Extra doesn't give me as much. Is there that much of an advantage to gaining those few extra MHz with all the study needed for Extra?

Rick in Mantua

Dear Rick:

The Extra-only frequencies can be useful in several ways. For example, during a contest moving to the Extra-only segment of a band can sometimes offer a little breathing room to make contacts or to carry on a normal conversation. Also, the Extra-only segments are designed technically to reside in the lowest segments of the 80-, 40-, 20-, and 15-meter bands to allow farther reach of signals to the more trusted Extra licensees when conditions for a given band are marginal. Additionally, some of those lower-frequency segments contain what's known as ***DX windows***, or designated frequency ranges where operators agree (gentleman's agreement) to focus on international (DX) communication.

Dear Editor:

I'm an older ham from a bygone day, and I'm jumping back into the hobby, and just recently got my General license back after all these years. I've noticed that a few ham radio operators have computer screens on their radio desks. Please excuse my ignorance, but why would a ham need a computer?

Kerry in Spring City

Dear Kerry:

Welcome back to the world of amateur radio! While having a computer near your radio is not always a necessity, it can be very convenient by placing some tasks in the palm of your hand. Not necessarily in any order, here are a few ham radio-related things that a computer might help with:

- Log contacts
- Look up call signs
- Check band conditions
- Listen on the WebSDR
- Program radios
- Operate digital (like FT8, Winlink, etc.)
- Search for the meaning of a ham radio term
- Look up a radio function in a manual
- Search for a training topic
- Study for the next license upgrade
- Search for satellite and ISS fly-by passes
- Purchase a needed piece of ham radio gear

Dear Editor:

What's with all the love for Baofeng HTs? Don't people realize that Yaesu and Kenwood HTs are much higher quality?

Paul in Salt Lake City

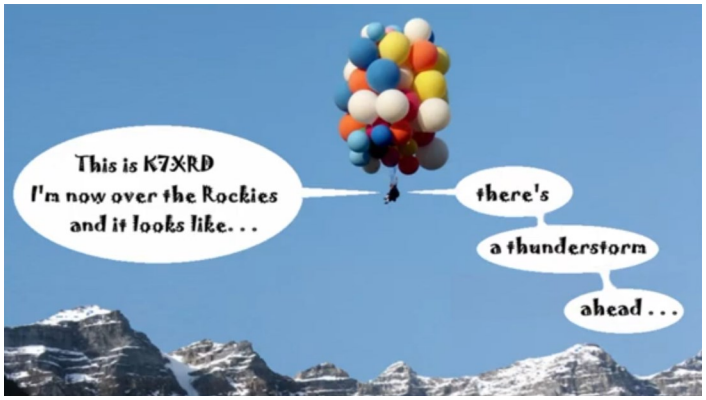
Dear Paul:

A Ferrari is a much higher-quality car, but a Corolla can get you to the store just as well.

Send your questions to ***editor@utaharc.org***

Club news

We kicked off the year by enjoying a fun club presentation for the January 2026 meeting by Mike McAinsh KI7MTI, on ***Pico Ballooning***. Mike explained that an operator can attach a radiosonde (instrument that detects and transmits weather data) to a weather balloon, which can carry the device high up in the atmosphere for many hours.



By the way, the timing of this *Microvolt* issue will be close to Winter Field Day, so we won't have photos or other information about what took place at the event until the March issue.

You can see the video presentation here. BTW, you can view past many club meeting presentations on our YouTube channel.

UARC Financial Statement 2025

Income	**8,009.23**
Events	925.00
Book sales	766.61
Donations	1000.00
Dues	3,920.00
Future dues	840.00
Steak Fry income	557.62
Expenses	**8,658.18**
Administrative	819.13
ARRL membership	161.50
Books	492.92
Field Day	1,233.51
Insurance	475.00
Meeting room expenses	1,156.63
Licenses, taxes	186.53
Equipment maintenance	1,307.61
Printing, postage	1,119.99
Vehicle registration	353.00
Bank fees	254.53
Steak Fry expenses	1,097.83
Net 2025 gain	**–648.95**

UARC 2026 Spring Potluck

You and your family are invited to a potluck dinner 6:30 pm Thursday 12 March 2026 at the Salt Lake County Facilities Management Cafeteria, 2001 S State St, room S1-100. Details are posted on our website.

2026 Summer Field Day

Believe it or not, Field Day is approaching! Once again, we plan to descend on our usual place near Payson Lakes and get on the air from noon Saturday 27 June through noon Sunday 28 June 2026, and invite you to join us. Details on how to get to our site are on the club website.

For your information

Winter Field Day 2026

UARC is planning to participate in Winter Field Day, from noon to 8 pm ***Saturday 24 January*** 2026 at the Utah Cultural Celebration Center, 1355 W 3100 S, WVC. To keep things simple, we plan to only run 2 stations, so our exchange will be ***W7SP 2M UT***.

UARC Spring 2026 Potluck

You and your family are invited to a potluck dinner 6:30 pm ***Thursday 12 March*** 2025. at the Salt Lake County Facilities Cafeteria, 2001 S State St, room S1-100. Details are posted on our website. We'll post a signup sheet soon.

License courses

Salt Lake:

General : Tuesdays 7:00 pm to 9:00 pm
147.160+ MHz (127.3 Hz tone)

Provo:

Technician : Saturday, 8:00 am to 1:00 pm
21 Feb, 21 Mar, 18 Apr, 16 May
Visit **HamStudy.org/sessions** to register (free)
Provo Fire Station #2, 2737 N Canyon Rd
Email **nv7vham@gmail.com** for info

Orem:

General : 4 Tuesdays, 6:00 to 8:30 pm
Jan 20, Jan 27, Feb 3, Feb 10
Visit **psclass.orem.org** to register ($10)
Orem City EOC, 56 N State St, 2nd Floor
HamStudy.org account required
Email **nojiratz@hotmail.com** for info

Eagle Mountain:

Technician : 5 Thursdays, 7 to 9 pm
Feb 12, Feb 19, Feb 26, Mar 12, Mar 19
Email **ki6oss6365@gmail.com** to register (free)
Eagle Mountain City Hall, 1650 Stagecoach Run

Exam sessions

Salt Lake County:

- Email Garth Wiscombe W7PS **w7ps@arrl.net**
  Jan 26, Feb 24, Mar 30
- Email Rick Morrison W7RIK **w7rik@arrl.net**
  04 Feb, 6:00 pm
  Utah Military Academy
  5120 S 1050 W, Riverdale

Utah County:

- Wed 18 Feb 7:00 pm : **Provo** : **signup**
- Sat 21 Mar 10:00 am : **Eagle Mtn** : **signup**
- Wed 18 Mar 7:00 pm : **Provo** : **signup**

Club repeaters

Farnsworth Peak : 146.620– MHz (no tone)
Scott Hill : 146.620– MHz (no tone)
Lake Mountain : 146.760– MHz (no tone)

SDRs and beacons

Northern Utah WebSDR : **sdrutah.org**
KK7AVS SDR : **k7xrd.club**
N7RIX SDR : **sdr.n7rix.com**
K7JL beacon 28.2493 MHz

HF remote and club transceiver stations

If you'd like to learn how to get started using the remote stations, visit the **HF Remotes link** on **the club website**:
https://user.xmission.com/~uarc/HFRemote.html

How you can help!

Email **uarc@xmission.com** to reach the club leadership. Email **editor@utaharc.org** to add content.

Spotlight – Tim Julian K7BOM

My name is Tim Julian. For some bizarre reason I was asked to share my ham story. So, here it is.

I'm a member of the Church of Jesus Christ of Latter-day Saints, and six years ago our Bishop called me to be over Self-reliance (SR) in our Ward. At the time I had no idea what that entailed. I soon discovered that we had 13 Block Captains and each one had a walkie-talkie, and that each only had a range of about one mile, if that much. Our group had a few Baofeng ham radios, but all this weird talk about *frequencies* was way over my head.

I finally came to the conclusion that to become better equipped to handle a real emergency I would need to become a certified (licensed) ham operator. So, I set a date, immediately paid my money (so I couldn't chicken out), signed up on HamStudy.org, got a set of Technician License Exam Flash Cards from Mometrix, and started studying like a madman. I missed one question (which to this day, I still do not believe I missed), and suddenly I was a licensed ham operator: K7BOM; that is, the BOMB for people not part of the LDS faith, or the Book of Mormon for those who are.

So, now I knew everything about ham radio operation, right? ...uh...nope...still baffled, and I was still not very useful. Fortunately for me, a kind ham radio helper and resource by the name of Noji Ratzlaff sent me an email asking if I needed any help, and so started our great relationship: the NOOB and the ELMER!

I finally got a good handheld ham radio: Baofeng BF-F8HP, and with Noji's help, I used the CHIRP program to start making sense of all those frequencies. Soon I realized I needed to have access to more frequencies. With Noji's help once again, and the two test-study-guides listed above, I passed the General exam with zero mistakes and the more advanced Extra exam with just two mistakes.

Now, let it be known, that I have a Bachelor's Degree in Chemical Engineering and a Master's Degree in Computer Science, yet ham technology is still very foreign. I could however, memorize test question-answers well, so memorizing 1,488 answers was a breeze. :-)

We then decided that for improved reception we needed better antennas, and I purchased the following:

For VHF/UHF: Diamond X-300A, Dual Band, 10 feet tall

For DX HF: Diamond BB7V, 14 feet tall

For local HF: 7-band Off-Center-Fed Dipole Antenna, 140 feet long

I wanted one transceiver that could handle most frequencies, so Noji recommended the Yaesu FT-991A.

I recently had two knee replacements, so Noji climbed up on my roof several times to set up the antennas and lay out and install the coax. He also pounded in the ground rod, attached the lightning arresters, laid out the grounding system, drilled holes through our foundation, and installed a coax switch. With my new antenna analyzer, we tested out the three antennas, and did everything else to bring my new ham shack to life.

Currently, my favorite VHF/UHF nets are the LDS Church ERC Net on Tuesdays at 11:45 am, our once-a-month Stake net, and the Sandy Bishops' Storehouse net on Tuesday nights. My favorite HF nets are the Lindon Bishops' Storehouse on Saturday mornings and the Beehive Net on weekdays.

I'm still learning a ton, and would like to personally thank my Elmers: Noji Ratzlaff KNØJI, George Oates K7BFI, Alan Rasmussen AJ9R, Dave Becar KI6OSS, and too many others to mention, for all the help they have rendered and the patience they have shown me. The bottom line: if you want to succeed as a ham operator, understand well that all noobs need great ELMERs to achieve that success!

– 73, Tim Julian

Tech Corner – Multi-cable entry enclosure

Many of you know that our family recently moved across town. This gave me an opportunity to do a few things a little differently as a result of past lessons learned. While I was somewhat proud of my cable routing job at the former house overall, my cable entry left a lot to be desired, so I decided to focus some of my new home shack efforts there. The goal was to bring three coax cables through a single weatherproof, tidy, and professional-looking opening in my house.

First, I had to convince my good wife Lisa KR5LYS to allow me to drill a big hole in the foundation, something I realize that few hams, let alone their spouses, would ever tolerate. Being a ham herself, she didn't require a lot of convincing, but she cried once and got it over with. She made me promise her, however, that it would look good in the end. We'll see whether I've lived up to that.

Next, the most difficult part was the planning, including numerous measurements, calculations, and mistakes. I'm listing the parts needed for three cables, one each for HF, VHF/UHF, and 6-meters. I've omitted everything on the other (non-enclosure) side of the arresters, including the coax, the antennas, and the anchoring, which I'll leave for you.

Parts list

One 8″ x 4″ x 3″ weatherproof ABS enclosure

One 8′ x ½″ ground rod

Three Alpha-Delta ATT3G50U arresters

One pkg drywall anchors and masonry bit

One tube DAP Ultra Clear sealant

One pkg Nashua Stretch-and-Seal silicone tape

One pkg 5/8″ rubber hose washers

Blue painter's tape

Three SO-239 bulkhead barrel connectors

One ½″ ground clamp

Three 1-foot RG-8X coaxial cables PL-259

Three 15-foot RG-8X coaxial cables PL-259

Two 2½″ corner braces

One 1¼″ x 2′ PVC tube

One 1¼″ HD rubber grommet

Planning ahead

I had to decide where and how to bring the coax cables into the house. We located my ham radio shack in an unused basement bedroom, which I'm also using for my office. I don't care for bringing coax, especially three of them, through the basement window well. I could have used some flat pass-through connectors, but that still means unsightly cables snaking down the window well and potentially obscuring my view. My remaining option was to bring them through the wall. The problem is that the yard outside comes up to about four inches below my ceiling, so I only had four vertical inches to play with, and behind those four inches of wall was the house foundation.

I rented a hammer drill ("rotary hammer") with SDS-Max bit size, and an 18-inch 1¾″ concrete SDS-Max bit (mine was 12″) to go with it, since I had planned to drill through the foundation. I also used my own hammer drill, which has an SDS-Plus bit size, along with a ¼″ concrete SDS-Plus bit to make a pilot hole. If you only need to drill through the sheetrock wall, you'll need a stud finder. I ensured my hammer drill bits handled rebar, costing me a little extra.

Going through either required me to penetrate sheetrock on the inside, so I used both a 12-inch ¼″ regular drill bit and a 1¾″ hole saw to get through it. I also located my drill motor and a bit set, including a 5/8″ wood bit (I would've used a metal bit, if I had one). With my 8-pound hand sledge (thanks, Daylon WB6KIT), I was ready to drive the ground rod into the dirt and break through the rocks.

Multi-cable entry enclosure, cont'd

Because I needed to bring three coaxial cable lines into my shack, I decided to use a 1¼″ ID PVC tube as a conduit. This size allowed me to run multiple cable lines into the house with the PL-259 coax connectors already installed at the factory, without needing to cut off, then re-install new connectors. It also gave me the freedom and flexibility of introducing future cables through the conduit. In spite of its 1¾″ OD (outside diameter), the tube turned out to be large enough to serve my cable routing needs without being unsightly large.

Enclosure-tube assembly

I drilled a 1¾″ hole in the back of the enclosure at an appropriate location. In my case, I had to get the hole as low as I could, since it ended up just inches above the dirt. Afterwards, I drilled three 5/8″ holes in the side of the enclosure for the SO-239 bulkhead barrel connectors. (If I had to do it over again, I would've drilled them on the other side, so that the closing latches would end up opposite the connectors.) I then cut the PVC pipe tube long enough to stick out ½″ from the concrete foundation and out of the inside wall about two inches. I then cemented the tube into the back of the enclosure using DAP Ultra Clear between the tube and the enclosure about ¼″ both inside and outside the enclosure, and let the sealant set for a week at room temperature.

Drill the big hole

My next job was to pinpoint exactly where to drill the hole. Half-way between the ceiling and the yard seemed reasonable, so I believe I had the vertical location figured out. I measured a spot that was a particular distance between where the window well glass meets the visible window edge and the inside wall of my shack closet. This way, I could measure that distance outside as well as inside, since the visible glass edge was common to both sides. These two gave me the hole location, and **X** marked the spot on the wall outside.

Foundation (concrete) hole

I first drilled a ¼″ hole through the foundation using my hammer drill and my ¼″ SDS-Plus bit. Then, I used the 12-inch ¼″ bit to slip into the new foundation hole and drill through the sheetrock into the shack. Using that as the pilot hole, I then used the 1¾″ hole saw and drilled a 1¾″ hole in the sheetrock from inside the shack. Once I secured the 1¾″ SDS-Max bit onto the SDS-Max hammer drill, I drilled straight through the foundation, using the ¼″ hole as the pilot. Holding the hammer drill straight, pulling the trigger, and pressing on the drill body while supporting its weight was no easy task, and can easily wear out the operator.

Wall (non-concrete) hole

In my previous house, I had drilled a similar hole, and at the same diameter, but through the studded wall instead of the foundation. I used the stud finder to help me drill away from the studs, but I had to track where the electrical wires ran, so I could miss those too. For the wall, using the regular drill

Multi-cable entry enclosure, cont'd

motor was a lot easier than with a hammer drill. I still had to use a 12-inch long ¼″ pilot bit, but all I needed to do was follow it with a 1¾″ hole saw from the outside, then with the same hole saw from the inside at the pilot hole.

Installing the enclosure-tube assembly

I slipped the enclosure-tube assembly into the 1¾″ hole I drilled into the foundation. I then drilled two 1/8" holes into the back of the enclosure for wall-mounting the assembly, marking the foundation with the drill bit. I removed the enclosure-tube assembly and drilled the holes in the foundation with a ¼″ masonry bit where I marked them with the 1/8″ bit. I then hammered the drywall anchors into the holes. I removed the enclosure-tube assembly from the foundation hole just a few inches, and liberally applied more DAP Ultra Clear around the gap between the tube and the foundation hole. I slipped the assembly all the way into the hole, applied the drywall anchor screws through the 1/8″ holes in the enclosure, and tightened them reasonably snug.

Next, I removed one nut from each barrel bulkhead connector, slipped the barrel through one of the three 5/8" holes from the inside of the enclosure, slipped a rubber washer over the thread from the outside, and re-applied the nut to the barrel on the outside and tightened the nut to the rubber washer. I repeated this with the remaining barrel connectors.

I attached the rubber grommet to the shack-end of the tube, routed the three shack cables through the tube one-by-one from the shack end, then connected them to the bulkhead barrel connectors inside the enclosure. That completed the enclosure construction.

Grounding

After I picked a spot in the dirt about eight inches from the foundation (for convenience) and about eight inches from the enclosure, my grandson Calvin helped me pound the ground rod into the dirt with my trusty 8-pound hand sledge, leaving about eight inches showing above the dirt. By the way, one alternative I like is to use the hammer drill with an SDS-Plus ground rod driver on the ground rod instead of trying to pound through rocks, even though the pounding provides a great workout.

I then attached the ground clamp to the ground rod about four inches from the top of the rod. I drilled out the holes of the two corner braces with a 1/4" bit and attached the braces to the ground clamp. I then bolted the arresters to the corner braces. I wish I had taken more photos of this detail, but maybe next time.

I laid out the 4 AWG ground wire on the roof and draped it down to the ground rod to measure. Then, I attached a ground clamp to the antenna masts on the roof and routed the ground wire through all the rooftop ground

Multi-cable entry enclosure, cont'd

clamps and then the one on the ground rod, all of them through the screw hole of the clamps.

I connected the 1-foot coax cables between the barrel bulkheads of the enclosure and the arresters, and the coax coming down from the antennas to the other side of the arresters. I finished up the whole project by wrapping all nine weather-exposed connectors with Nashua silicone tape, not including the ones on the roof at the antennas.

Summary

Just so you'll know, this was no single afternoon project, but it was a rewarding multiple-day effort that paid off both technically and aesthetically. Plus, it gave me a reason to spend some time with my grandson. This enclosure not only looks neat, but is completely weather-proof against the elements. Most importantly, Lisa approves.

Noji Ratzlaff KNØJI

Strays – Buyer be aware

Shopping online for ham radio gear can save you a ton of dough, or it can sink your hard-earned cash into things you might not need or understand. So, arming yourself with a little knowledge can go a long way toward a happy purchase. It's also good to know whether you're getting ripped off, so *buyer beware*, or more to the point, ***buyer be aware!***

Most of your online purchases will result in good outcomes, and most people who sell their equipment are good, honest folks. So, most of the time an unpleasant experience is not the result of a dishonest seller, but more likely lack of knowledge on your part or an innocent mistake on theirs.

Transceivers

There are a number of things to keep in mind when purchasing a transceiver ("rig"):

- If the unit is an HF rig, make sure it comes with a mic and working mic cord; if it's a mobile, both mic and mounting bracket
- Be sure the rig is not so old that it's practically unusable, because maybe it's rockbound, or drifts, or only supports FM, etc.
- Be sure you know whether it has tubes, if that's important to you, and what condition they're in
- If it has a digital display, be sure it has no lines on the display and that the entire face backlights (no bulbs are burnt out)
- Make sure all the displays (meters, LCD screens, dial faces, etc.) work properly and do not have significant burns, scratches or other damage, such as sun and weathering
- You need to see / hear / read the seller tell you that the rig is fully functional, as in, can transmit at the highest power levels on all applicable modes

- Make sure it's not been used or stored in a smoking or pet environment, if that's important to you
- Find out whether the internal battery (if any) has ever been replaced, and when
- Make sure the knobs aren't wobbly, especially the big tuning knob, and that they're easy to turn
- Make sure the pots behind the knobs aren't scratchy or intermittent
- If the rig is an HT, make sure it comes with the charger, plus a battery that can hold a full charge. If it's a mobile or base, make sure it comes with the DC power cable to an appropriate connector.
- Make sure your rig comes with a programming cable or (tuner, amp, etc.) controller cable, if those are important to you
- If the rig uses a modular (RJ-11, RJ-45, etc.) jack, be sure no bare wires are showing at the plug end outside the housing
- Might be good to know whether the rig was ever installed in a vehicle or exposed to physical shock or inclement weather
- Best to purchase a rig that has never been modified (*modded*), but if it has been, be aware of what mod was installed ("MARS/CAP" is probably the most common)

Other items

Things to understand when purchasing items besides transceivers:

- If it's an antenna tuner, be sure you know whether it's a manual vs. automatic tuner (as an aside, it's helpful to know at what maximum SWR an autotuner will match for...many typically match a maximum SWR of 3.0:1)
- When looking at a tuner, be sure it supports the minimum input power and frequency range you need

Buyer be aware, continued

- If you're looking at an antenna, be sure you know whether its gain is listed in dBd or dBi, if gain is important to you. If it's listed as simply "dB", you must assume it's dBi.
- When purchasing a PSU (power supply unit), be sure you know whether it's a linear PSU or a switching (switched-mode) PSU. Switching PSUs tend to be much lighter and less expensive, but linear PSUs tend to present cleaner DC voltage and provide a higher amount of current.
- If you're looking at power supplies, get one that can easily supply the most amount of current required by your equipment, and the greatest amount of current you can afford; I recommend using a 30 A PSU, whether you're supplying power to a base rig or a mobile unit, and in particular, the $140 Powerwerx SS-30DV.
- If you're looking at an amplifier, be sure you know whether it requires 240 VAC or can accept 120 VAC
- When shopping for an amplifier, you might be amazed by its output power, but be sure you also know the input power that's required to drive it
- And speaking of power, understand whether the amplifier has tubes or solid-state devices for its finals, if that's important to you
- Also, be sure the amplifier supports the frequency range you need
- Many more things about amplifiers just could not be covered here easily, but characteristics such as dynamic range, gain compression, rig control, and weight can also be features to consider
- The success rate of purchasing *used* coaxial cable or other types of feed line, such as ladder-line, is fairly low, so purchase new if possible
- Keep in mind that, the older a microphone is, the more spit and other unsavory liquids have been sprayed onto the device, so assume you'll spend some quality time cleaning this (and other) used equipment you might purchase

In general

The following are considerations that apply to just about any kind of online purchase you make:

- Be sure the item has not already been sold
- Make sure the price you're seeing is USD, not pounds or Canadian or something else
- If the price seems unusually low, be aware that it might be listed *as-is* (aka, not working) or for *parts only*
- Similarly, watch for words such as *needs TLC* and *vintage*
- Most of the time ads that say, "I'm not a ham, and I don't know much about this equipment my spouse left behind" are telling you the truth; however, once in awhile it means, "This equipment does not work at all, but I want to sell it to you at half the working price"
- Be sure you can have it shipped to you; some require *Pickup Only* and some ship to CONUS (lower 48 states only)
- Be ready to provide the payment type the seller requires; some require PayPal, some require Venmo, some require Postal Money Order, etc.
- Keep in mind that many do not accept returns, due to parts-swapping by other unscrupulous shoppers
- A photo is worth a thousand bucks, especially if it shows the unit in operation, and not just a stock photo, or if it shows signs of damage and severe weathering not mentioned by the seller

Can you think of other tips?

Utah DCC

Utah Digital Communications Conference

Advancing Amateur Radio through Traditional and Digital Innovations

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We encourage you to submit original pictures (highest resolution), articles, software and hardware descriptions, appropriate humor, and responses to editorials. Email the content, pictures attached, to the editor at **editor@utaharc.org** by the 20th just prior to the target month.

The **Utah Amateur Radio Club** was organized under its present name in 1927, although its beginnings may date back as early as 1909. In 1928, it became affiliated with the American Radio Relay League (club #1602) and is a 501(c)(3) non-profit organization. It holds a club station license with the call sign W7SP, a memorial to Leonard "Zim" Zimmerman, amateur radio pioneer in the Salt Lake City area.

The club meets each month except July and August. The meetings are usually held on the second Thursday of the month at 7:30 PM in the University of Utah's Warnock Engineering Building, room 2230.

Club membership is open to anybody interested in amateur radio; a current license is not required. Dues are $20 per year. Send dues to club secretary James Bennett, 4960 W 5400 S, Kearns, Utah 84118. Send address changes to **kk7avs@gmail.com**

Tax-deductible monetary contributions are gladly accepted. Send directly to club treasurer Shawn Evans, 1338 S Foothill Dr, #265, Salt Lake City, Utah 84108-2321. For in-kind contributions, please contact **uarc@xmission.com** to make arrangements.

UARC maintains the 146.620– and 146.760– repeaters, which are administered by the UARC Repeater Committee. Direct comments and questions to any committee member. The 146.760– repeater is on IRLP node 3352.

Call the **UARC Ham Hotline** at **801-583-3002** for amateur radio information, including club, testing, meeting, and membership information. Leave a message, and we'll make an effort to return your call.

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For-late breaking news listen to the UARC Information Net, Sundays at 8:30 pm on 146.620– or visit the announcement page.

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